Listing of Claims

1. (Canceled)

2. (Previously Presented) A method for avoiding interference in a radio communications band during operation of a first RF device employing a first frequency hopping spread spectrum protocol, in conjunction with the operation of at least one other RF device employing a different communications protocol, comprising:

identifying an interference from the at least one other RF device in the radio communication band; and

adjusting the first RF device to avoid overlap with the at least one other device, wherein hopping frequencies employed by the first RF device cluster in one or more frequency ranges within the radio communications band,

wherein during clustering, a second frequency range within the radio communications band is not occupied by any channel used by the first RF device, the second frequency range being continuous and having a width corresponding to a plurality of channels capable of transmitting communications of the first RF device.

3. (Previously Presented) The method of claim 2, wherein the identifying the interference comprises determining a bit error rate or frame error rate.

4. (Original) The method of claim 2, wherein the at least one other RF device includes a fixed frequency duplex device.

5. (Original) The method of claim 2, wherein the at least one other RF device includes a second device, wherein the second device operates according to the IEEE 802.11 protocol.

6. (Original) The method of claim 2, wherein the at least one other RF device includes a third device, wherein the third device employs a second frequency hopping spread spectrum protocol.

7. (Previously Presented) The method of claim 6, wherein the first device and the third device operate in the same time domain,

wherein the adjusting the frequency of operation comprises intelligent frequency hopping employed by the first device.

8. (Previously Presented) A method for avoiding interference in a radio communications band during operation of a first RF device employing a first frequency hopping spread spectrum protocol, in conjunction with the operation of at least one other RF device employing a different communications protocol, comprising:

identifying an interference from the at least one other RF device in the radio communication band;

adjusting the first RF device to avoid overlap with the at least one other device, wherein hopping frequencies employed by the first RF device cluster in one or more frequency ranges,

wherein the identifying an interference comprises

selecting a plurality of test channels in accordance with a channel structure of the interferer,

selecting a frequency that is potentially occupied by an interferer that is the source of the interference in each selected channel,

measuring a received signal strength associated with each selected channel, and

identifying the interferer in accordance with the measured received signal strength indicators,

wherein the at least one other RF device includes a third device, wherein the third device employs a second frequency hopping spread spectrum protocol;

measuring a received signal strength indicator associated with the third device, by the first RF device;

converting the received signal strength indicator into interfering signal transmit timing associated with the third device to estimate transmit timing associated with the third device; and

adjusting transmit/receive timing of the first RF device to avoid interference between the first RF device and the third device, whereby the first RF device and the third device do not operate in the same time domain.

9. (Previously Presented) The method of claim 6, wherein the at least one other RF device further includes a second device, wherein the second device operates in a frequency band according to the IEEE 802.11 protocol.

10. (Previously Presented) A method for avoiding interference in a radio communications band during operation of a first RF device employing a first frequency hopping spread spectrum protocol, in conjunction with the operation of at least one other RF device employing a different communications protocol, comprising:

identifying an interference from the at least one other RF device in the radio communication band; and

adjusting the first RF device to avoid overlap with the at least one other device, wherein hopping frequencies employed by the first RF device cluster in one or more frequency ranges,

wherein the identifying an interference comprises

selecting a plurality of test channels in accordance with a channel structure of the interferer;

selecting a frequency that is potentially occupied by an interferer that is the source of the interference in each selected channel;

measuring a received signal strength associated with each selected channel; and

identifying the interferer in accordance with the measured received signal strength indicators,

wherein the at least one other RF device includes a third device, wherein the third device employs a second frequency hopping spread spectrum protocol,

wherein the at least one other RF device further includes a second device, wherein the second device operates in a frequency band according to the IEEE 802.11 protocol,

wherein the first RF device and the third device operate in the same time domain, and wherein the first RF device selects the hopping frequencies that cluster in the one or more

frequency ranges, wherein the one or more frequency ranges does not substantially overlap the frequency band employed by the second device.

11. (Previously Presented) The method of claim 10, wherein the third device includes intelligent frequency hopping capability, whereby the third device selects hop frequencies that cluster in a second frequency range, wherein the second frequency range does not substantially overlap the one or more frequency ranges or the frequency band employed by the second device.

12. (Previously Presented) A method for avoiding interference in a radio communications band during operation of a first RF device employing a first frequency hopping spread spectrum protocol, in conjunction with the operation of at least one other RF device employing a different communications protocol, comprising:

identifying an interference from the at least one other RF device in the radio communication band;

adjusting the first RF device to avoid overlap with the at least one other device, wherein hopping frequencies employed by the first RF device cluster in one or more frequency ranges,

wherein the identifying an interference comprises

selecting a plurality of test channels in accordance with a channel structure of the interferer,

selecting a frequency that is potentially occupied by an interferer that is the source of the interference in each selected channel,

measuring a received signal strength associated with each selected channel, and

identifying the interferer in accordance with the measured received signal strength indicators,

wherein the at least one other RF device includes a third device, wherein the third device employs a second frequency hopping spread spectrum protocol,

wherein the at least one other RF device further includes a second device, wherein the second device operates in a frequency band according to the IEEE 802.11 protocol;

measuring a received signal strength indicator associated with the third device, by the first RF device;

converting the received signal strength indicator into interfering signal transmit timing associated with the third device to estimate transmit timing associated with the third device; and

adjusting transmit/receive timing of the first RF device to avoid interference between the first RF device and the third device, wherein the adjusting the frequency of operation comprises intelligent frequency hopping employed by the first RF device, whereby the first RF device and the third device do not operate in the same time domain, and whereby the first and the third device do not substantially overlap the frequency band employed by the second device.

13. (Previously Presented) A system comprising:

a first RF module, wherein the first module employs a first frequency hopping spread spectrum protocol;

at least one additional RF module;

a first protocol stack and transcoder coupled to the first module; and

a system microcontroller in communication with the first module and the at least one additional module, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module to avoid interference identified from the at least one other RF module, wherein hopping frequencies employed by the first RF module cluster in one or more frequency ranges within a radio communications band,

wherein during clustering, a second frequency range within the radio communications band is not occupied by any channel used by the first RF module, the second frequency range being continuous and having a width corresponding to a plurality of channels capable of transmitting communications of the first RF module.

14. (Original) The system of claim 13, wherein the at least one additional RF module comprises a second module, and wherein the second module employs a second frequency hopping spread spectrum protocol.

15. (Previously Presented) The system of claim 14, wherein the microcontroller receives and sends instructions through the second module protocol stack and transcoder to adjust the operation frequencies employed by the second module to avoid interference with the first RF module.

16. (Original) The system of claim 13, wherein the at least one additional RF module comprises a third module employing an 802.11 protocol, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module to avoid interference with the third RF module.

17. (Original) The system of claim 15, wherein the at least one additional RF module further comprises a third module employing an 802.11 protocol, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module to avoid interference with the frequency band associated with the third RF module.

18. (Original) The system of claim 17, wherein the microcontroller receives and sends instructions through the second module protocol stack and transcoder to adjust the operation frequencies employed by the second module to avoid interference with the frequency band associated with the third RF module.

19. (Previously Presented) The system of claim 18, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module, wherein the first module selects hop frequencies from one or more frequency ranges that does not substantially overlap the band employed by the third RF module.

20. (Previously Presented) The system of claim 19, wherein the microcontroller receives and sends instructions through the second module protocol stack and transcoder to adjust the operation frequencies employed by the second module, wherein the second module selects hop frequencies from a second frequency range that does not substantially overlap the one or more frequency ranges or the frequency band employed by the third RF module.

21. (Previously Presented) An RF communications device comprising:

a first RF transceiver employing a frequency hopping spread spectrum protocol, wherein the transceiver includes capability of detection of an interferer employing a different RF communications protocol;

a first frequency hopping spread spectrum protocol stack and transcoder coupled to the first RF transceiver;

and a microcontroller in communication with the protocol stack, wherein the microcontroller facilitates clustering into one or more frequency ranges of a radio communications band of a set of channels employed by the first transceiver,

wherein during the clustering, a second frequency range within the radio communications band is not occupied by any channel used by the first RF transceiver, the second frequency range being continuous and having a width corresponding to a plurality of channels capable of transmitting communications of the first RF transceiver,

wherein the detection of an interferer comprises:

selecting a plurality of test channels in accordance with a channel structure of the interferer,

selecting a frequency that is potentially occupied by an interferer that is the source of the interference in each selected channel,

measuring a received signal strength associated with each selected channel, and

identifying the interferer in accordance with the measured received signal strength indicators.

22. (Original) The device of claim 21, further including:

a second RF transceiver in communications with the microcontroller, wherein the second RF transceiver employs a communications protocol different from the first transceiver.

23. (Previously Presented) The method of claim 2, wherein the identifying the interference comprises:

selecting a plurality of test channels in accordance with a channel structure of the interferer;

selecting a frequency that is potentially occupied by an interferer that is the source of the interference in each selected channel;

measuring a received signal strength associated with each selected channel; and

identifying the interferer in accordance with the measured received signal strength indicators.

24. (Previously Presented) The device of claim 13, wherein the interference is identified by:

selecting a plurality of test channels in accordance with a channel structure of the interferer,

selecting a frequency that is potentially occupied by an interferer that is the source of the interference in each selected channel,

measuring a received signal strength associated with each selected channel, and

identifying the interferer in accordance with the measured received signal strength indicators.